"Three Messages from Volatile Electric Markets"

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I. Introduction

Good morning. I appreciate the opportunity to address this meeting of the Energy Bar Association. During this period of high natural gas prices and high electricity prices in some markets, it seems clear that we are experiencing a critical testing of our market-based approach to regulation.

In the years following Order No. 636, natural gas prices declined, and competition continues to flourish. Market hubs increased exponentially, and innovative products and services have become the rule rather than the exception. Natural gas demand has increased substantially, and the Commission has certificated literally thousands of miles of new pipeline capacity. Both supply area, and market area, storage have proliferated. There is now an integrated North American market. For a variety of reasons, natural gas has become the fuel of choice for electric generation.

But over the past few months, natural gas prices have spiked and may go higher this winter. The market tells us that there is an imbalance between a deliverable supply and demand. In 1989 and 1999, prices were under $2.00 per mcf, and several hundred drilling rigs ceased operation. Now, however, spurred by higher prices, the rig count has more than doubled.

High prices this winter may lead to calls for the Commission to re-examine its policies, but I have confidence that over time the gas market will reach equilibrium between supply and demand, and at an acceptable price. I have this confidence because of my respect for the efficiency of our interstate natural gas transportation system that operates generally on a non-discriminatory basis, and which has recently

laid thousands of miles of pipe to mitigate delivery bottlenecks and to access new markets and supplies.

In contrast, I have much less confidence in the vibrancy and efficiency of our wholesale electricity markets. The unique attributes of electric systems, such as the lack of storage capability, loop flow that congests needed interfaces, and the need to match supply and demand in real time to avoid catastrophic system failure, all underscore the importance of market structure issues. If our goals are economic efficiency, reasonable prices, operational integrity and system reliability, the electric market must be compatible with system operations in real time. Regional markets require integrated regional grid operations. In addition, horizontal and vertical market power in electric markets is a vexing problem that can shape market outcomes.

In most electricity markets, more supply is necessary and, unlike the gas transportation grid, the high voltage electricity grid has not expanded with the increase in demand. Good markets should over time spur the entry of new generation resources, but I must confess that I often despair that necessary interstate transmission facilities will not become a reality unless Congress transfers the siting authority to the federal level as it is for pipelines.

In addition, high electricity prices out West this summer have created a crisis of confidence in electricity markets. Consumers are rightly demanding that markets produce just and reasonable prices. If not, they threaten municipalization. It was a hot summer in California, hydro resources were slack, natural gas prices were high, and the cost of emissions permits for generators skyrocketed. Thus, some increase in wholesale prices is certainly understandable. Nevertheless, the dramatic increases, literally multiples of 1999 prices, have caused outrage and shock in California. At a hearing FERC held in San Diego on Tuesday, Governor Gray Davis said that California consumers simply won't tolerate the existing situation. He warned that through a ballot initiative similar to the infamous Proposition 13, Californians could very well revolt and turn the entire California electric supply and delivering system into a state-owned operation. Clearly, the Commission can no longer tolerate flawed market structures, hoping against hope that they produce just and reasonable prices. Letting a hundred flowers bloom, or deferring to a dysfunctional wholesale market structure designed by a particular state, is no longer acceptable.

II. Three Messages

This summer's events have literally shouted three fundamental messages to us: First, certain elements are required for a well functioning electric market. Second, the Commission must use a more sophisticated analysis for determining eligibility for market-based pricing. And third, all eyes are on California; if electricity markets fail to produce just and reasonable prices, some would say politically acceptable prices, the spread of competition elsewhere in the country is clearly at risk. Let me discuss these three points.

A. The Elements of a Well Functioning Market

The first major lesson from this summer's events is that there are certain elements needed for a well functioning market. Perhaps these elements have been obvious to some observers, but this summer drove them home with a vengeance for all of us. It should go without saying that FERC and the states must pay heed and insist that these market elements are in place.

1. Hedging

State and federal policy makers must ensure that there is not over reliance on the real time and spot markets. Spot markets are almost by nature volatile. While the spot market is the appropriate venue to secure limited portions of needed supply, it should not be relied upon for most or all of the supply portfolio. Over reliance by buyers on real time markets actually increases the market power of suppliers in those markets.

Market participants should be given the latitude to use forward contracts and other instruments to hedge as much as is reasonable. Surely purchasers having available a balanced portfolio of long-term and short-term supply is a key ingredient of well functioning markets. Moving market participants away from the spot market and toward forward contracts is a key feature of the Commission's California remedy order. But state commissions must do part of the job. We've heard that the load serving entities in California are reluctant to enter forward contracts due to the risk of imprudence findings by the PUC if they "guess wrong" on a forward contract purchase. States must resolve this. In some way, a balance must be struck between

protecting ratepayers from the costs of poor forward procurement and the costs of riding the spot market. One participant at our recent California hearing suggested developing portfolio management standards. This is an excellent idea.

2. Demand Side Responsiveness

A second necessary market component is demand side responsiveness. Demand responsiveness is a standard means of moderating prices in well-functioning markets, but it is largely absent from electricity markets. When prices for other commodities get high, consumers can respond by buying less, thereby acting as a brake on price run-ups. Without the ability of end use electricity consumers to respond to prices, there is virtually no limit on the price that suppliers can fetch in shortage conditions. Consumers see the exorbitant bill after the fact. All reports and analyses I have seen have emphasized the lack of demand responsiveness as a critical problem.

Promoting demand responsiveness is primarily a state matter, but there is a FERC role as well. RTOs must develop programs in which loads can bid offers of demand reduction into the market to compete with offers of supply. In essence, generators bid megawatts and the load bids negawatts in an integrated market. The Commission should promote demand-side markets as part of our RTO policy. Our proposed California order directs the ISO to pursue this.

3. Accurate Scheduling

A third element of a good market is accurate scheduling of load and generation. Underscheduling can contribute to high prices. Surely some degree of scheduling imprecision is to be expected, but the market monitors in California reported deliberate underscheduling in the California PX day ahead markets by both load serving entities and generators in order to influence market prices. Substantial underscheduling then forces the ISO to go into the real time markets to make up the difference between what has been scheduled and the generation needed to avoid blackouts. Under such conditions, the ISO is vulnerable to paying very high prices. Perhaps even more important, last minute resource imbalances pose reliability concerns.

Market rules must create strong incentives for market participants to schedule as accurately as possible before real time. The underscheduling problem in California has a number of causes. One is the lack of a reserve requirement obligations on load serving entities, or LSEs. A requirement that LSEs own or contract in advance for the generation needed to serve their load would mitigate a last minute scramble for power to keep the lights on, with the consequent high prices. Another source of underscheduling in California is the existence of many individual scheduling coordinators that are required to submit balanced schedules to the ISO. Unmet demand is then forced to show up in the real time market.

All supply and demand should be required to bid into a single day-ahead market. This way the system operator knows day ahead whether there is a need to procure additional capacity. I believe such an integrated market would go a long way toward minimizing underscheduling and would take pressure off the real time markets.

4. Congestion Management System

A fourth component of a well functioning market is an effective congestion management system. It's no secret that I am a proponent of locational pricing. I believe it is the most efficient way to manage congestion. Locational prices signal to market participants the real cost of a transaction based on the physical characteristics and constraints of the network. Without these price signals, generators will submit schedules to the system operator that are not physically possible.

Locational pricing sends accurate signals about the need for additional generating or transmission facilities and the efficient location for those new facilities. Effective congestion management is needed for smooth market operation.

5. Market Monitoring

This summer's events have underscored the importance of the market monitoring function. Clearly, electricity markets have not matured to the point where we can walk away from them and expect them to work smoothly. The market monitors of each of the ISOs have provided highly sophisticated and

valuable reports on a wide range of issues related to market power and market structure.

6. RTOs Are Needed Now

The sixth element of a well functioning market is an RTO. An RTO will eliminate the conflicting incentives vertically integrated firms still have in providing access. RTOs will streamline interconnection standards and help get generation into the market. I have been pushing for greater standardization of federal interconnection standards so that generators that want to hook up will have uniform rules that facilitate easy entry. Interconnection legerdemain is anticompetitive and anti-consumer.

RTOs also improve grid management. Eliminating pancaked transmission pricing enlarges markets. And a truly regional approach to congestion management can lower costs and increase the amount of capacity available to the market. RTOs will also serve as a regional forum for planning.

By expanding the scope of markets, rationalizing access and interconnection, and facilitating planning and grid expansion, RTOs will help bring about an adequate and efficient supply of generation and transmission facilities that the market signals a need for.

To realize these benefits, RTOs must be truly regional in scope, large and well shaped. This summer's experience has demonstrated that electricity markets are inherently regional in nature. Prices throughout the western United States rose and fell with prices in California. This is a strong argument for a single Western-interconnection-wide RTO.

The Commission must insist on RTOs of adequate scope and configuration. Yet, this is the least clearly defined of the requirements in Order No. 2000. The Commission should initiate a formal process aimed at creating one large RTO in regions where we have sub-optimally sized proposals. This may require the appointment of a settlement judge or other Commission supervised processes aimed at facilitating a regional agreement among adjacent RTO entities that are simply too small.

One final note on RTOs. We are now in the compliance phase of Order No. 2000, and we must decide quickly how to proceed with the filings we have. For those RTO filings that the Commission finds to be in compliance with Order No. 2000, we should approve them quickly and celebrate them. Set them as examples. At the other end of the spectrum, for those that fall far short, we should reject them, send them back to the drawing board, and be specific about why. That leaves those proposals that are "in the middle," so to speak. By these I mean proposals that demonstrate a good faith effort to comply with each of the required characteristics and functions set out in Order No. 2000, but that nevertheless fall short. Our goal is for these RTO proposals to evolve quickly into compliance. This will require clear and concrete guidance from the Commission, and we must facilitate an iterative process with these applicants that encourages them to make the changes necessary to comply.

I believe we now know that these elements – hedging, demand responsiveness, RTOs, effective congestion management, accurate scheduling – are necessary for well functioning markets.

B. A Sophisticated Standard for Market Based Pricing

The second major lesson I take from this summer's experience is that it's time for the Commission to revise our approach to market analysis and market power determinations. The basic nature of our regulatory task is quickly moving from reviewing prices charged by individual sellers to ensuring good performance by markets. Our focus is shifting, and our analytical tools must track this new responsibility. Our tools must also account for the unique complexities of electricity markets. Supply and demand must be balanced simultaneously, market conditions vary significantly over relatively short time intervals, and some aspects of supply can come only from generators with certain technical characteristics.

Market performance is heavily affected by these characteristics. I believe they require a sophisticated analysis. However, most, if not all, of our jurisdictional public utilities are operating with market based pricing authority that was justified by what is known as a hub-and-spoke analysis. This method focuses on calculating the market share of an individual seller. Under this method, customers are identified as those that are directly interconnected with the seller. Potential suppliers to those customers are identified as those sellers that are directly

interconnected with a customer and those that are directly interconnected with the seller whose market share is being calculated. Market shares are then based on total generating capacity and generating capacity that remains after native load is served. This has been our traditional method for determining seller market power in the context of market-based rate applications.

The hub and spoke method is an anachronism. First, it focuses solely on the market share of the individual seller instead of the conditions in the market. Second, it takes little account of the physical limitations on market size, such as transmission constraints. Third, it takes no account of any economic factors, such as prices, costs or transmission rates. And finally, it takes no account of the variance of supply and demand over time. Clearly, the Commission needs a more sophisticated approach to market analysis.

In recent orders, the Commission has imposed mitigation methods on some markets until those markets are shown to be workably competitive. In our California order, we said that a dysfunctional market riddled with market flaws gave rise to market power and prices that are not just and reasonable. This signals that we have turned at least one corner and are prepared to focus on markets instead of solely on individual sellers. I would note that the concept of workable competition is somewhat elusive among economists. At some point, however, the Commission will have to operationalize and standardize the concept. Workable competition has been defined as competition that leads to a reasonable or socially acceptable performance in the circumstances of a particular industry. Thus, it is a pragmatic standard that takes into account the unique conditions of an industry. Let me suggest the kinds of things that might be appropriate to consider in deciding whether a market is workably competitive.

First, I would look at market concentration, but surely not in the same way this measure is derived under the old hub-and-spoke method. We must be far more sophisticated than that. Perhaps markets could be defined somewhat along the lines of how we now define them for mergers under what is known as the Appendix A analysis. The Appendix A approach moves in the right direction in that it considers energy prices, transmission capacity and transmission prices, all factors that can affect the scope of trade. This approach also takes account of the time dimension of supply and demand. By that, I mean that it is capable of analyzing horizontal slices of the supply curve at various load levels – such as peak, super peak, off peak and

shoulder – to measure supplier concentration. Even more sophisticated approaches may be needed for assessing concentration in today's electricity markets.

But while concentration is a very useful statistic, I would not limit our market power analysis merely to concentration issues. The market monitor reports from the California ISO and PX challenge us to look at market power in new ways. They have riveted our attention on a number of additional market structure issues. An analysis that seeks to determine if a market is workably competitive should also look at the market rules to determine if those rules create any perverse incentives or obstacles to market participants behaving in a competitive and efficient manner. We must look to see if the rules in the market result in the elements of a well functioning market as I've discussed earlier. For example, the ability of customers to respond to price run ups by curtailing purchase is an effective check on the exercise of market power. If it is lacking, I seriously doubt that we will see workably competitive outcomes from that market. By the same token, if meaningful forward contracting opportunities do not exist, we won't see competitive outcomes.

I also think that computer simulation modeling will become essential to determining if markets are workably competitive. Such models can take into account the interaction of market structure, market rules and other market conditions such as demand responsiveness, to estimate behavior and the result on consumer prices. And after all, it is the results of markets that we are interested in. Modeling is used to some extent now in our merger analysis. I strongly encourage its continued development and increased use.

And as a last step in our market analysis, I believe we should look at past behavior in the market. It could be a clue to flaws in the market that were undetected by the first three area of a inquiry I've suggested.

These are just some initial thoughts on how to put some meat on the bones of the workable competition concept. These ideas are clearly not set in stone. Instead, they are meant to stimulate discussion and debate. My main point is that the Commission must redefine its standards for evaluating markets and market power.

And oh yes – I almost forgot. There is another market power standard I would urge. As I've discussed earlier, RTOs are needed now. The uncertainty over grid organization is hamstringing markets in a number of ways. We can no longer

be timid. RTOs should be required. We must insist that the horizontal and vertical market power mitigation potential of RTOs be fully implemented. Participation in an RTO should henceforth be a condition for FERC approval of any merger or application for market based rates.

C. Competition at Risk

The third major lesson is that all eyes are on California, and if we and the state fail to solve the California market problems, the spread of electric competition to other regions and states is clearly at risk. The trade press has provided a number of recent accounts of state decisions in Arkansas, Montana and elsewhere to delay the advent of competition. The Montana PSC, for example, cited the risk of high wholesale prices and the fact that FERC has not implemented fully its goal of open, independent, regional electric transmission systems.

Let's face it. The California market problems and the resulting high prices are a major blow to the spread of competition. We can, however, and we must, turn this into an opportunity to take actions that will reassure consumers that markets can produce reasonable prices.

I do not regard Governor Davis' remarks as in idle threat. I believe him. We must not fail in this endeavor.